

What is claimed is:

1. An engine control device for a construction machine, characterized in that said engine control device comprises an engine as a power source, control means for performing an automatic stop control to automatically stop said engine when a predetermined automatic stop condition is met, and warm-up state detecting means for detecting a warm-up state of said engine and wherein said control means is adapted to perform said automatic stop control in a condition that completion of a warm-up operation for said engine is detected by said warm-up state detecting means.
2. An engine control device for a construction machine, characterized in that said engine control device comprises an engine as a power source, control means for performing an automatic stop control to automatically stop said engine when a predetermined automatic stop condition is met, and cool-down necessity detecting means for detecting whether or not said engine is in a state where a cool-down operation is required and wherein said control means is adapted to perform said automatic stop control in a condition that a cool-down period is kept before said engine is automatically stopped when said cool-down necessity detecting means detects that said engine is in an operation state where said engine requires the cool-down operation.
3. The engine control device for the construction machine according to claim 2, wherein, as said cool-down necessity detecting means, a temperature detector for detecting a temperature of a portion whose temperature increases in accordance with an operation of said engine, and said control means is adapted to select a required cool-down period in

accordance with the detected temperature by said temperature detector.

4. The engine control device for the construction machine according to claim 3, wherein said control means automatically selects one of a plurality of cool-down period patterns in accordance with the detected temperature by said temperature detector.

5. The engine control device for the construction machine according to claim 2, wherein said control means stops said engine when completion of the cool-down operation of said engine is detected by said cool-down necessity detecting means.

6. An engine control device for a construction machine, characterized in that said engine control device comprises an engine as a power source, control means for performing an automatic stop control to automatically stop said engine when a predetermined automatic stop condition is met, and warm-up necessity detecting means for detecting whether or not said engine is in a state where a warm-up operation of said engine is required, and wherein said control means is adapted to automatically restart said engine when said warm-up necessity detecting means detects that said engine is in the state where the warm-up operation is required after said engine is automatically stopped by said automatic stop control.

7. The engine control device for the construction machine according to claim 6, wherein said engine control device further comprises warm-up state detecting means for detecting a warm-up state of said engine and said control means performs said automatic stop control in a condition that completion of the warm-up operation is detected by said warm-up state detecting means.

8. The engine control device for the construction machine according to any one of claims 2 to 5, wherein said engine control device further comprises warm-up state detecting means for detecting a warm-up state of said engine, and said control means is adapted to perform said automatic stop control in a condition that completion of a warm-up operation is detected by said warm-up state detecting means.

9. The engine control device for the construction machine according to any one of claims 2 to 5, wherein said engine control device further comprises warm-up necessity detecting means for detecting whether or not said engine is in a state where a warm-up operation is required, and said control means is adapted to automatically restart said engine when said warm-up necessity detecting means detects that said engine is in the state where the warm-up operation is required after said engine is automatically stopped by said automatic stop control.

10. The engine control device for the construction machine according to any one of claims 2 to 5, wherein said engine control device further comprises warm-up state detecting means for detecting a warm-up state of said engine and warm-up necessity detecting means for detecting whether or not said engine is in a state where a warm-up operation is required, and that said control means comprising:

A) performing an automatic stop control in the condition that completion of the warm-up operation is detected by said warm-up state detecting means; and

B) restarting said engine when said warm-up necessity detecting means detects that said engine is in the state where the warm-up operation is

required after said engine is automatically stopped by said automatic stop control.